

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016389**Date Inspected:** 20-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG**Summary of Items Observed:**

CWI Inspectors: Mr. Liu Hua Jie, Mr. Sun Zi Wang

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

**OBG Segment Trial Assembly**

ABF issued "Inspection Notification Sheet" number 08192010-1 item #2 informing QA that on 08-20-2010 at 1940 hours ABF Inspectors would perform ultrasonic (UT) and magnetic particle (MT) inspections of repaired bottom plate weld OBW9B-008 at location Y=2950 mm. This weld was located between the bottom plates between OBG segment 9BW and 9CW. This QA Inspector observed ABF/Sense Inspectors performing magnetic particle and ultrasonic inspections of this weld repair area and the weld was accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and the weld repair area appeared to comply with project specifications. Note: These inspections were documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

ABF issued a UT report with identification number UT-9W-097 dated 8-20-2010 which states

ABF has completed and accepted ultrasonic inspections of OBG segment 9CW hold back weld SEG053A-012,

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length 650 mm and OBG segment 9DW hold back weld SEG055A-045, length 1500 mm. These welds were located between the side plates and bottom plates where OBG segment 9BW and 9CW are joined. This QA Inspector observed ABF/Sense UT Inspectors have identified these two welds as being UT accepted. This QA Inspector performed random visual and ultrasonic inspections utilizing scanning patterns A, B, C and D (AWS D1.5 Fig 6.7) and the welds appeared to comply with project specifications. Note: These inspections were documented and tracked on "Verification Witness Request" documents. See the TL-6027 UT report for additional information concerning this inspection.

ZPMC issued "Inspection Notification Sheet" number 06446 informing Caltrans QA that ZPMC is requesting ultrasonic inspections (UT) of the complete joint penetration counterweight attachment plate welds on OBG segments 9AW, 9BW and 9CW edge plates in support of "Tagging in Process". This QA Inspector performed random visual and ultrasonic inspections of the following welds: Segment 9BW OBW9K-001-003, OBW9K-001-005; Segment 9CW OBW9K-001-007. This QA Inspector observed ZPMC has not installed the counterweight attachment plates on OBG segment 9CW beyond panel point PP70, and these plates are to be shipped "loose" to facilitate securing the segments to the ship prior to transport and the welds will be completed at the jobsite following shipping of the OBG segments. Items observed by this QA Inspector appear to comply with AWS D1.5 UT requirements. Note: See QA Inspector Mr. Mike Hasler's MT and UT reports for additional inspections for this notification. For additional information on these inspections see this QA Inspector's TL6027 Ultrasonic Test Report.

This QA Inspector observed ZPMC welder Mr. Wang Xiaomin, stencil 046709 used shielded metal arc welding procedure specification WPS-345-SMAW-4G(4F)-FCM-Repair-1 to complete weld repairs per weld repair document B-WR14607. This weld repair document was issued to perform repairs of ultrasonic rejections in OBG segment 9DW corner assembly weld CA065-002. This QA Inspector observed a welding current of approximately 180 amps, Mr. Wang Xiaomin appeared to be certified to make this weld and the base materials were being preheated with an electric heater. Items observed on this date appeared to generally comply with applicable contract documents.

ZPMC QC Inspector Mr. Wang Li Yang informed this QA Inspector that he was monitoring welders stencil 050038, 53871, 40453, 40518, 40320 and 46960 as they are welding temporary alignment plates to various weld joints between OBG segments 10AE and 10BE.

### Blast Shop 2

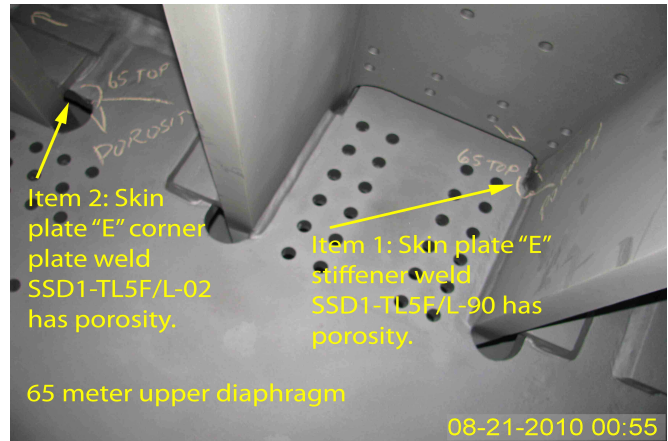
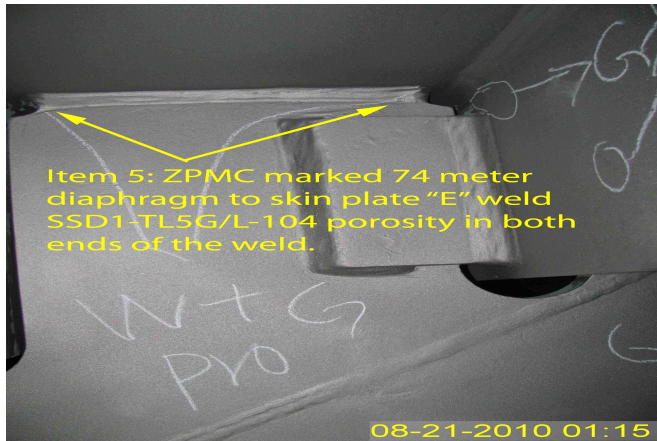
ZPMC requested Caltrans personnel to perform visual inspections of South Tower Lift 2 between the 65M upper double diaphragm to 83 meter elevation on August 21, 2010 at around 00:30 hours following the initial pre-blast cleaning of the steel surfaces. Caltrans QA Inspectors Ken Riley, Mike Hasler and this QA Inspector performed random visual inspections of these areas. This QA Inspector visually observed approximately 40 locations that required grinding to resolve visual weld spatter, arc strikes, shallow nicks, scrapes, and other minor surface rejections and three locations which require weld repairs. ABF and ZPMC Inspectors also performed visual inspections of the areas indicated above and a total of seven areas were identified as needing weld repairs. A "Blast Inspection" incident report has been issued to document these repairs and below is a total list of the weld repairs that were observed by all Inspectors.

1- 65 meter diaphragm to skin plate "E" stiffener weld SSD1-TL5F/L-90 has porosity.

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- 2- 65 meter diaphragm to skin plate "E" corner plate weld SSD1-TL5F/L-02 has porosity.
  - 3- 65 meter diaphragm to skin plate "A" weld SSD1-TL5F/L-10 has a gouge in the weld.
  - 4- Skin plate "D" stiffener #1 has a gouge located 300 mm below the 71 meter diaphragm.
  - 5- 74 meter diaphragm to skin plate "E" weld SSD1-TL5G/L-104 has porosity in both ends of the weld.
  - 6- Corner plate to skin plate "C" weld has porosity 50 mm below the 74 meter diaphragm.
  - 7- 74 meter diagonal brace to skin plate "B" weld has undercut 30 mm above the 74 meter diaphragm.
- See the photographs below for additional information.



## Summary of Conversations:

See Above.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

**Inspected By:** Dawson,Paul  
**Reviewed By:** Carreon,Albert

Quality Assurance Inspector  
QA Reviewer